

**What is claimed is:**

1. A telecommunication signal frame comprising a section overhead (SOH) with a Regeneration Section OverHead (RSOH) comprising in turn a first byte (K1) and a second byte (K2), said first byte (K1) comprising bits ( $a_{K15}$ ,  $a_{K16}$ ,  $a_{K17}$ ,  $a_{K18}$ ) identifying the destination node and said second byte (K2) comprising bits ( $a_{K21}$ ,  $a_{K22}$ ,  $a_{K23}$ ,  $a_{K24}$ ) identifying the source node, wherein said Multiplex Section OverHead (MSOH) comprises a third byte (K0) comprising at least one Source Node Identification Extension bit ( $a_{K05}$ ,  $a_{K06}$ ;  $a_{K03}$ ,  $a_{K04}$ ,  $a_{K05}$ ), at least one Destination Node Identification Extension bit ( $a_{K07}$ ,  $a_{K08}$ ;  $a_{K06}$ ,  $a_{K07}$ ,  $a_{K08}$ ) and at least one bit ( $a_{K01}$ ,  $a_{K02}$ ,  $a_{K03}$ ,  $a_{K04}$ ;  $a_{K01}$ ,  $a_{K02}$ ) indicating a change of the information in said first and/or second and/or third bytes (K1, K2, K0).

2. A frame according to claim 1, wherein said Source Node Identification Extension bits ( $a_{K05}$ ,  $a_{K06}$ ) and said Destination Node Identification Extension bits ( $a_{K07}$ ,  $a_{K08}$ ) are two in number and said bits ( $a_{K01}$ ,  $a_{K02}$ ,  $a_{K03}$ ,  $a_{K04}$ ) indicating an information change are four in number.

3. A frame according to claim 1, wherein both said Source Node Identification Extension bits ( $a_{K03}$ ,  $a_{K04}$ ,  $a_{K05}$ ) and said Destination Node Identification Extension bits ( $a_{K06}$ ,  $a_{K07}$ ,  $a_{K08}$ ) are three in number and said bits ( $a_{K01}$ ,  $a_{K02}$ ), indicating an information change are two in number.

4. A frame according to claim 2, wherein said Source Node Identification Extension bits ( $a_{K05}$ ,  $a_{K06}$ ) are the fifth and sixth bits of the third byte (K0), said Destination Node Identification Extension bits ( $a_{K07}$ ,  $a_{K08}$ ) are the subsequent two ones and said bits ( $a_{K01}$ ,  $a_{K02}$ ,  $a_{K03}$ ,  $a_{K04}$ ) indicating an information change are the first four ones.

5. A frame according to claim 3, wherein said Source Node Identification Extension bits ( $a_{K03}$ ,  $a_{K04}$ ,  $a_{K05}$ ) are the third, fourth and fifth bits of the third byte (K0), said Destination Node Identification Extension bits ( $a_{K06}$ ,  $a_{K07}$ ,  $a_{K08}$ ) are the subsequent three ones and said bits ( $a_{K01}$ ,  $a_{K02}$ ) indicating an information variation are the first two ones.

6. A frame according to claim 1, wherein the third byte (K0) is located at the 9<sup>th</sup> row, 9<sup>th</sup> column of the first STM-1 of the frame.

7. A method for optimizing the time management of the information carried by a first byte (K1) and a second byte (K2) of the Multiplex Section OverHead (MSOH) of the Section Overhead (SOH) of a telecommunication signal

frame and for increasing the number of nodes in a telecommunications optical ring, wherein it includes the step of arranging the bits ( $a_{K01}$  to  $a_{K08}$ ) of a third byte ( $K0$ ) of the Multiplex Section OverHead (MDOH) in such a way that at least one of them ( $a_{K05}$ ,  $a_{K06}$ ,  $a_{K03}$ ,  $a_{K04}$ ,  $a_{K05}$ ) represents an Extension of the Source Node IDentification and at least one of them ( $a_{K07}$ ,  $a_{K08}$ ;  $a_{K06}$ ,  $a_{K07}$ ,  $a_{K08}$ ), represents an Extension of the Destination node IDentification and at least one of the remaining ones ( $a_{K01}$ ,  $a_{K02}$ ;  $a_{K03}$ ,  $a_{K04}$ ;  $a_{K01}$ ,  $a_{K02}$ ) indicates an information change in said first and/or second and/or third bytes ( $K1$ ,  $K2$ ,  $K0$ ).

8. A method according to claim 7, wherein both said Source Node IDentification Extension bits ( $a_{K05}$ ,  $a_{K06}$ ) and said Destination Node IDentification Extension bits ( $a_{K07}$ ,  $a_{K08}$ ) are two in number and said bits ( $a_{K01}$ ,  $a_{K02}$ ,  $a_{K03}$ ,  $a_{K04}$ ) indicating an information change are four in number.

9. A method according to claim 7, wherein both said Source Node IDentification Extension bits ( $a_{K03}$ ,  $a_{K04}$ ,  $a_{K05}$ ) and said Destination Node IDentification Extension bits ( $a_{K06}$ ,  $a_{K07}$ ,  $a_{K08}$ ) are three in number and said bits ( $a_{K01}$ ,  $a_{K02}$ ) indicating an information change are two in number.

10. A method according to claim 7, wherein, in transmitting the frame, the first and the second bytes ( $K1$ ,  $K2$ ) are sent first and finally the third byte ( $K0$ ) is sent.

11. A method according to claim 7, wherein, in receiving the frame, the first and second bytes ( $K1$ ,  $K2$ ) are read if at least one, but preferably all bits ( $a_{K01}$ ,  $a_{K02}$ ,  $a_{K03}$ ,  $a_{K04}$ ;  $a_{K01}$ ,  $a_{K02}$ ) indicating an information change of the third byte ( $K0$ ) are changed and as a result an interrupt is generated.

12. A method according to claim 11, wherein the Destination Node IDentification is calculated with the following algorithm:

$$IDDN_{K1+K0} = IDDN_{K1} + 16 * IDDNE_{K0}$$

where:  $IDDN_{K1+K0}$  = binary number "extended" IDentification of the Destination Node (calculated by using the bits of  $K1$  and  $K0$ );  $IDDN_{K1}$  = binary number IDentification of the Destination Node (bits  $a_{K15}$ ,  $a_{K16}$ ,  $a_{K17}$ ,  $a_{K18}$ );  $IDDNE_{K0}$  = binary number Extension of the Destination Node IDentification (bits  $a_{K07}$ ,  $a_{K08}$ ;  $a_{K06}$ ,  $a_{K07}$ ,  $a_{K08}$ ).

13. A method according to claim 11, wherein the Source Node IDentification is calculated with the following algorithm:

$$IDSN_{K2+K0} = IDSN_{K2} + 16 * IDSNE_{K0}$$

Where:  $IDSN_{K2+K0}$  = binary number Extended IDentification of the Source Node (calculated by using the bits of K2 and K0)  $IDSN_{K2}$  = binary number IDentification of the Source Node (bits  $a_{K21}$ ,  $a_{K22}$ ,  $a_{K23}$ ,  $a_{K24}$ );  $IDSNE_{K0}$  = binary number Extension of the Source Node IDentification (bits  $a_{K05}$ ,  $a_{K06}$ ;  $a_{K03}$  -  $a_{K05}$ ).

14. A computer program comprising computer program code means adapted to perform the algorithm indicated in claim 12 or 13, when said program is run in a computer.

15. A computer readable means having a computer program recorded thereon, said computer readable medium comprising computer program code means adapted to perform the algorithm indicated in claim 12 ~~or 13~~, when said program is run in a computer.

16. The use of a third byte (K0) of a telecommunication signal frame to manage in an optimized manner the information contained in a first (K1) and a second (K2) bytes of the same frame, wherein said third byte (K0) comprises at least one Source Node IDentification Extension bit ( $a_{K05}$ ,  $a_{K06}$ ;  $a_{K03}$ ,  $a_{K04}$ ,  $a_{K05}$ ), at least one Destination Node IDentification Extension bit ( $a_{K07}$ ,  $a_{K08}$ ;  $a_{K06}$ ,  $a_{K07}$ ,  $a_{K08}$ ) and at least one bit ( $a_{K01}$ ,  $a_{K02}$ ,  $a_{K03}$ ,  $a_{K04}$ ;  $a_{K01}$ ,  $a_{K02}$ ) indicating a change of information in said first and/or second and/or third byte (K1, K2, K0).